

## Calculus Warm Up #13-2

- 1) Without a calculator, find the interval on which the function is decreasing.

$$f(x) = 2x^3 - 10x^2 + 6x - 7$$

- 2) Find the pt-slope equation of the line tangent

$$\text{to } f(x) = \frac{3x}{2} - \sin x, \quad \text{at } x = \pi$$

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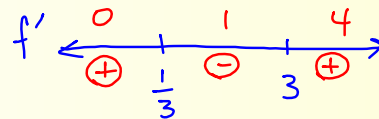
- 1) Without a calculator, find the interval on which the function is decreasing.

$$f(x) = 2x^3 - 10x^2 + 6x - 7$$

$$f'(x) = 6x^2 - 20x + 6$$

$$0 = 2(3x^2 - 10x + 3)$$

$$2(3x - 1)(x - 3)$$



decreasing on  $(\frac{1}{3}, 3)$

- 2) Find the pt-slope equation of the line tangent

$$\text{to } f(x) = \frac{3x}{2} - \sin x, \quad \text{at } x = \pi \rightarrow y = \frac{3\pi}{2} - \sin \pi$$

$$f'(x) = \frac{3}{2} - \cos x$$

$$f'(\pi) = \frac{3}{2} - \cos \pi$$

$$= \frac{3}{2} + 1$$

$$= \frac{5}{2}$$

point of tangency •  
 $(\pi, \frac{3\pi}{2})$

$$y - \frac{3\pi}{2} = \frac{5}{2}(x - \pi)$$

More Practice:

1) Put together as one simplified fraction:

$$3x^2(-7(3x^2 + 5x)^{-6}(2x - 1)) + 9x^3(3x^2 + 5x)^{-5}$$

2) Find any asymptotes for:

$$f(x) = \frac{4 - 5x}{\sqrt{2x^2 + x}}$$

Last bit...

1. Evaluate:

$$\lim_{x \rightarrow 2} \frac{x^2 - x - 2}{-2 + x}$$

2. Use the definition of the derivative to find  $y'$ ,  $y = x^3$

3. Suppose the position equation for a moving object is given by  $s(t) = -16t^2 - 2t + 2$   
Find the velocity when  $t = 2$

HW: Finish up the Reviews  
and check answers online.

Return your book if you do  
not intend to take Calc B.